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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/900,713	07/05/2001	Yonglin Huang	NFCS-00-014	3966

7590
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11/20/2002

EXAMINER

SHAHER, RICKY D

ART UNIT	PAPER NUMBER
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2872

DATE MAILED: 11/20/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/900,713

Applicant(s)

HUANG ET AL

Examiner

R. D. SHAFER

Group Art Unit

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— The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address —

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

☒ Responsive to communication(s) filed on 8/20/02

☒ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

☒ Claim(s) 1-48 is/are pending in the application.

Of the above claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1-48 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claim(s) _____ are subject to restriction or election requirement

Application Papers

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner

☒ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).

☐ All ☐ Some* ☐ None of the:

☐ Certified copies of the priority documents have been received.

☐ Certified copies of the priority documents have been received in Application No. _____.

☐ Copies of the certified copies of the priority documents have been received
in this national stage application from the International Bureau (PCT Rule 17.2(a))

*Certified copies not received: _____

Attachment(s)

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 7

☐ Interview Summary, PTO-413

☐ Notice of Reference(s) Cited, PTO-892

☐ Notice of Informal Patent Application, PTO-152

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Other _____

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1. Claims 1-48 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1, 9, 22, 35 and 41 are vague, indefinite and fail to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The above mentioned claims list a plurality of optical elements without any correlation or nexus between the elements so as to present a complete operative device. For example, it is unclear where the rotator is located with respect to the first polarizer, the second polarizer and the correction element. It is unclear where the second polarizer is located with respect to the first polarizer, the rotator and the correction element. It is unclear where the correction element is located with respect to the first polarizer, the second polarizer and the rotator. The examiner states that the specific arrangement and/or order of the elements is of a necessity in order for the optical device to operate as intended.

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 35-38, 41-43 and 48 are rejected under 35 U.S.C. 102(b) as being anticipated by Matsui ('245).

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To the extent the claims are definite, Matsui discloses an optical isolator comprising means for separating (12), means for rotating (17), means for refracting (13) and a correction element (16). Note figures 2 and 3 and the associated description thereof.

4. Claims 35-48 are rejected under 35 U.S.C. 102(b) as being anticipated by Konno et al ('264).

To the extent the claims are definite, Konno et al discloses an optical isolator comprising means for separating (P11), means for rotating (F1), a means for refracting (P12) and a correction element (P13e), or alternatively means for separating (P21,P21e), means for rotating (F), means for refracting (P22) and a correction element (P23,P23e), wherein the walk off distance of at least one of the rays is inherently approximately equal to the length of the correction element multiplied by the tangent of an angle (B) due to the fact that the rays are synthesized at the exit end of the correction element. Note figures 1A, 1B, 7A and 7B and the associated description thereof.

5. Claims 35-48 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakamura ('892).

To the extent the claims are definite, Nakamura discloses an optical isolator comprising means for separating (1), means for rotating (4 or 5), means for refracting (2) and a correction element (3), or alternatively means for separating (11), means for rotating (14), means for refracting (12) and a correction element (12), wherein the walk off distance of at least one of the rays is inherently approximately equal to the length of the correction element multiplied by the

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tangent of an angle (B) due to the fact that the rays are synthesized at the exit end of the correction element. Note figures 1 to 5 and the associated description thereof.

6. Claims 35-48 are rejected under 35 U.S.C. 102(b) as being anticipated by MacArthur ('058).

To the extent the claims are definite, MacArthur discloses an optical isolator comprising means for separating (21), means for rotating (27), means for refracting (23) and a correction element (42), wherein the walk off distance of at least one of the rays is inherently approximately equal to the length of the correction element multiplied by the tangent of an angle (B) due to the fact that the rays are synthesized at the exit end of the correction element. Note figures 1 to 9 and the associated description thereof.

7. Claims 35-48 are rejected under 35 U.S.C. 102(b) as being anticipated by Matsumoto ('329).

To the extent the claims are definite, Matsumoto discloses an optical isolator comprising means for separating (4), means for rotating (6), means for separating (5) and a correction element (7) or alternately means for separating (4), means for rotating (6), means for refracting (8) and a correction element (5), wherein the walk off distance of at least one of the rays is inherently approximately equal to the length of the correction element multiplied by the tangent of an angle (B) due to the fact that the rays are synthesized at the exit end of the correction element. Note figures 1A to 6 and the associated description thereof.

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8. Claims 9-11, 15-24 and 27-34 are rejected under 35 U.S.C. 102(b) as being anticipated by Masuda et al ('431).

To the extent the claims are definite, Masuda et al discloses an optical isolator comprising a first polarizer (36), a polarization rotator (34), a second polarizer (38) having an optic axis approximately 45 degrees apart from an optic axis of the first polarizer (see Fig. 2 and column 4, lines 27-29) and a correction element (40), wherein the walk off distance of at least one of the rays is inherently approximately equal to the length of the correction element multiplied by the tangent of an angle (B) due to the fact that the rays are synthesized at the exit end of the correction element. Note figures 1 to 3 and the associated description thereof.

9. Claims 1, 2, 5-11, 15-24 and 27-48 are rejected under 35 U.S.C. 102(b) as being anticipated by Swan ('771).

To the extent the claims are definite, Swan discloses an optical isolator comprising a first polarizer (14), a polarization rotator (12), a second polarizer (16) having an optic axis approximately 45 degrees apart from an optic axis of the first polarizer (see column 6, lines 25-42) and a correction element (22), wherein the walk off distance of at least one of the rays is inherently approximately equal to the length of the correction element multiplied by the tangent of an angle (B) due to the fact that the rays are synthesized at the exit end of the correction element. Note figures 1 to 3 and the associated description thereof.

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

11. Claims 3, 4, 12-14, 25 and 26 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Swan ('771).

To the extent the claims are definite, Swan discloses all of the subject matter claimed, note the above explanation, except for explicitly stating that the first polarizer has an optic axis of plus or minus 45 degrees and/or the second polarizer has an optic axis of 0 or 90 degrees.

However, in column 6, lines 34-42 of Swan, Swan clearly states that the optic axis of one of the crystals can be orientated at 45 degrees with respect to the optic axis of the other crystal, which would inherently imply that one of the crystals must be orientated at 0 or 90 degrees in order to maintain the crystal optical axes having a 45 degrees difference. As to limitations of the first polarizer has an optic axis of plus or minus 45 degrees and the second polarizer has an optic axis of 0 or 90 degrees, the nomenclature of which polarizer is considered the first polarizer and which polarizer is considered the second polarizer is strictly arbitrary.

However, if this is not the case, such difference(s) certainly would have been minor and obvious or within the level of one of ordinary skill in the art at the time the invention was made, based on the specification's lack of showing of criticality or unexpected results.

12. Claims 9-12, 20, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsui ('245) in view of Official Notice.

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To the extent the claims are definite, Matsui discloses an optical isolator comprising a first polarizer (12), a polarization rotator (17), a second polarizer (13) and a correction element (16), note figures 2 and 3 and the associated description thereof, except for explicitly stating that the polarizers are wedges.

It is well known to use wedge shaped polarizing elements in the same field of endeavor for the purpose of preventing optical signals from being reflected back into the source. Note by example only, U.S. Patent 4,548,478 to Shirasaki and U.S. Patent 5,631,771 to Swan.

Therefore, it would have been obvious and/or within the level of one of ordinary skill in the art at the time the invention was made to modify the polarizers of Matsui to have a wedge shape, as is well known in the art, in order to prevent optical signals from being reflected back into the source.

13. Claims 9-12, 15-25 and 27-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Konno et al ('264) in view of Official Notice.

To the extent the claims are definite, Konno et al discloses an optical isolator comprising a first polarizer (P21,P21e), a polarization rotator (F), a second polarizer (P22) and a correction element (P23,P23e), wherein the walk off distance of at least one of the rays is inherently approximately equal to the length of the correction element multiplied by the tangent of an angle (B) due to the fact that the rays are synthesized at the exit end of the correction element, note figures 7A and 7B and the associated description thereof, except for explicitly stating that the polarizers are wedges.

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It is well known to use wedge shaped polarizing elements in the same field of endeavor for the purpose of preventing optical signals from being reflected back into the source. Note by example only, U.S. Patent 4,548,478 to Shirasaki and U.S. Patent 5,631,771 to Swan.

Therefore, it would have been obvious and/or within the level of one of ordinary skill in the art at the time the invention was made to modify the polarizers of Konno et al to have a wedge shape, as is well known in the art, in order to prevent optical signals from being reflected back into the source.

14. Claims 9-26 and 28-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura ('892) in view of Official Notice.

To the extent the claims are definite, Nakamura discloses an optical isolator comprising a first polarizer (11), a polarization rotator (14), a second polarizer (13) and a correction element (12), wherein the walk off distance of at least one of the rays is inherently approximately equal to the length of the correction element multiplied by the tangent of an angle (B) due to the fact that the rays are synthesized at the exit end of the correction element, note figures 4 and 5 and the associated description thereof, except for explicitly stating that the polarizers are wedges.

It is well known to use wedge shaped polarizing elements in the same field of endeavor for the purpose of preventing optical signals from being reflected back into the source. Note by example only, U.S. Patent 4,548,478 to Shirasaki and U.S. Patent 5,631,771 to Swan.

Therefore, it would have been obvious and/or within the level of one of ordinary skill in the art at the time the invention was made to modify the polarizers of Nakamura to have a wedge

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shape, as is well known in the art, in order to prevent optical signals from being reflected back into the source.

15. Claims 9-26 and 28-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over MacArthur ('058) in view of Official Notice.

To the extent the claims are definite, MacArthur discloses an optical isolator comprising a first polarizer (21), a polarization rotator (27), a second polarizer (23) and a correction element (42), wherein the walk off distance of at least one of the rays is inherently approximately equal to the length of the correction element multiplied by the tangent of an angle (B) due to the fact that the rays are synthesized at the exit end of the correction element, Note figures 1 to 9 and the associated description thereof, except for explicitly stating that the polarizers are wedges.

It is well known to use wedge shaped polarizing elements in the same field of endeavor for the purpose of preventing optical signals from being reflected back into the source. Note by example only, U.S. Patent 4,548,478 to Shirasaki and U.S. Patent 5,631,771 to Swan.

Therefore, it would have been obvious and/or within the level of one of ordinary skill in the art at the time the invention was made to modify the polarizers of MacArthur to have a wedge shape, as is well known in the art, in order to prevent optical signals from being reflected back into the source.

16. Claims 9-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto ('329) in view of Official Notice.

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To the extent the claims are definite, Matsumoto discloses an optical isolator comprising a first polarizer (4), a polarization rotator (6), a second polarizer (5) and a correction element (7) or alternately a first polarizer (4), a polarization rotator (6), a second polarizer (8) and a correction element (5), wherein the walk off distance of at least one of the rays is inherently approximately equal to the length of the correction element multiplied by the tangent of an angle (B) due to the fact that the rays are synthesized at the exit end of the correction element, note figures 1A to 6 and the associated description thereof, except for explicitly stating that the polarizers are wedges.

It is well known to use wedge shaped polarizing elements in the same field of endeavor for the purpose of preventing optical signals from being reflected back into the source. Note by example only, U.S. Patent 4,548,478 to Shirasaki and U.S. Patent 5,631,771 to Swan.

Therefore, it would have been obvious and/or within the level of one of ordinary skill in the art at the time the invention was made to modify the polarizers of Matsumoto to have a wedge shape, as is well known in the art, in order to prevent optical signals from being reflected back into the source.

17. The disclosure is objected to because of the following informalities: $\Theta 2$, shown in Fig. 2, lacks a proper written description.

Appropriate correction is required.

18. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the

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following is required: proper antecedent basis for the first polarizer having an optic axis of plus or minus 45 degrees and the second polarizer having an optic axis of 0 or 90 degrees.

19. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the first polarizer having an optic axis of plus or minus 45 degrees must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

20. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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21. Any inquiry concerning this communication should be directed to R.D. Shafer at telephone number (703) 308-4813.

RDS

November 13, 2002

Ricky D. Shafer
RICKY D. SHAFER
PATENT EXAMINER
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